

## **Bicycle 'Helmet Wars': Fact, Fiction and Moving Forward**

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As a recent reader of ChainLinks, I have been surprised by the apparent on-going war against the wearing of bicycle helmets within the newsletter, as illustrated in the January/February issue (pg 20; 25-26; 27-29). As a Safekids advocate for child safety, and because preventing bicycle injuries is a theme for next years KidSafe week, the topic is of interest and concern to me. Safekids is a service of Starship Children's Health, which works to keep children aged 0-14 years safe from preventable injury.

In the following paragraphs I would like to firstly outline the case for the use of bicycle helmets, which some readers may not be aware of if they just read the articles in ChainLinks. Secondly, I would like to make a plea for moving beyond the "helmet wars" by suggesting that our energies would be better spent advocating for cycle use that is safe and healthy through promoting environmental and engineering changes that have the potential to benefit both cyclists and pedestrians.

### ***'Helmet Wars': Fact and Fiction***

The latest skirmish in the 'helmet war' has just occurred in two eminent academic journals: British Medical Journal(1) and the Injury Prevention journal.(2) At the core of the debate is the opinion on one side that helmets are effective and thus should be worn, and that compulsory use through legislation is the best method of achieving use.(2, 3) The counter argument is that helmets are not that effective, compulsory use is an unnecessary imposition upon cyclists, and the focus upon cycle injuries deters people from seeing the positive aspects of cycling such as improved health through exercise.(4, 5) Both sides claim support from research and use rhetoric to buttress their arguments.

Before making my plea for a ceasefire, the following summarises the main points made by the protagonists: The text in *italics* summarises some of the more common and negative assertions about the efficacy of bicycle helmets, followed by my response.

*Cycle injuries are not a major problem in New Zealand.*

### **Response: The burden of unintentional injury and bicycle injuries in New Zealand is significant**

Unintentional injury is a significant health issue in New Zealand. For ages 1 to 34 unintentional injury is the leading cause of death in New Zealand, and it is the third leading cause of death for those aged 35-54 years. Unintentional injuries are also the leading cause of hospitalisation for children aged 10-14 years, and they are the second leading cause of hospitalisation for those aged 5-9, and 15-34.(6) This premature loss of life represents very significant levels of lost productivity. It is estimated that of the potential years of life lost in 1996, 21% were due to injuries.(7)

For the period 1992-1996 bicycle deaths accounted for 1.1% of all injury related deaths, and 2.3% of all injury related hospitalisations.(8)

For all age groups, male cyclists are 2.9 times more likely than females to be seriously injured.(9)

In period 1989 to 1998 there was a decrease of 43% in cycle deaths involving a motor vehicle on a public road, and a decrease of 47% in hospitalisations for the same period. (9)

This reduction in the bicycle related injury toll, and the relatively small numbers of cycle injuries in the context of the overall injury picture does not reflect the scale of such incidents. For example between 1989 and 1998 there were a total (all ages) of 195 cyclist deaths, the vast majority (91%) of which involved a collision with a motor vehicle on a public road. In the same period, 12,103 cyclists (all ages) were hospitalised due to injuries while riding, of which one-fifth (21%) resulted from a collision with a motor vehicle.(9)

Of those children (those aged under 15 years) who were injured in New Zealand resulting in death or hospitalisation during 1990-1998, 55 (4.9%) died and 6436 (5.8%) were hospitalised due to injuries suffered while riding a bicycle. The vast majority of deaths occurred as the result of a collision with a motor vehicle (particularly for 10-14 year olds). In contrast, the majority (83%) of hospitalisations did not involve a motor vehicle.(10)

In the period 1989-1998, the highest rates of bicycle death and hospitalisation (26%) were to children aged 10-14 years. The Injury Prevention Research Unit at the University of Otago suggests that the high rates of serious injury suffered by children in this age group is "probably attributable to the longer number of kilometres cycled."(9) Those in the 35-39 year old age group, also had similar high rates of serious injury.(9)

Land Transport Safety Authority traffic crash data for 1995-1999 for child cyclist injuries resulting from coming into contact with a motor vehicle shows that an overwhelming 90% of injuries occurred in a 50kph speed zone, 83% on a flat road, 49% at an intersection, and 27% at a driveway.(11)

While there is a need for effective injury prevention at all stages of the lifespan, there is a strong argument for children receiving "first call" on available resources. Children, unlike adults, receive only one chance at development and are rarely able to speak directly to decision-makers about their needs. This principle is enshrined in "First Call for Children" originating from the World Summit for Children (September 1990).

In summary, injury is a significant issue in New Zealand, and New Zealand's overall rate of unintentional injury is poor compared to other countries, particularly for children. While cycle injuries can be seen as not a major problem in the context of the whole injury scene, this should not blind us to the fact that numbers of cyclists are being killed and injured on New Zealand roads, and our children are particularly vulnerable.

*Helmets are not effective except in minor crashes.*

**Response: Helmets are effective**

There is plenty of evidence for the effectiveness of helmet in reducing the risk by 63-88% for cyclists of all ages, in the event of a crash, of suffering a head, brain, and severe brain injury.(12-14) While bicycle and motorcycle helmets are tested in impacts at 22 kilometres per hour (kph), they usually protect the wearer well where the initial speed is higher, because the severity of the force is normally determined by the closing speed of the head and paving, not by the wearer's forward motion. Research on crashed bicycle helmets shows that most

people hit the ground at a relative speed of about 14 kph. If a rider is hit by a car or hits a brick wall at 50 kph and the head takes a direct blow at that speed, no helmet will prevent injury or death. Fortunately, this scenario is not common.(3)

This view on the effectiveness of helmets is questioned by some cycling advocates, and a very few researchers most notably Adams & Hillman, and others.(4, 15-18) Adams and associates argue that the effectiveness of helmets is overstated because cyclists who wear helmets are less cautious and thus more likely to be injured than those who do not wear helmets ("risk homeostasis" theory). Or, that there are other factors that explain the apparent effectiveness of bicycle helmets, such as changes in the patterns of risk exposure, which better explain changes in injury.

The views of Adams et al are rejected as largely unsubstantiated by experienced injury prevention researchers and practitioners. The debates have recently been well-rehearsed in recent issues of the Injury Prevention Journal (<http://ip.bmjournals.com/>) and the British Medical Journal (<http://bmj.com/>). Safekids is committed to the promoting the use of bicycle helmets as one effective way to help reduce New Zealand's child injury burden.

*Nobody uses helmets in the Netherlands.*

**Response: The situation in New Zealand and Holland are not the same**

Some people do use helmets in Holland, and increasingly parents are helmeting their children there. Holland also benefits from unique bicycle facilities and drivers who are expecting them on the roads. When compared to New Zealand, there are also other significant differences such as, road design, road surfaces, trails, traffic, signalisation, motorists' attitudes, cyclists' attitudes, the bicycles themselves, car lighting, bike lighting and accessories, and climate.

*Mandatory helmet laws have discouraged cycling, increased safety fears, resulting in increased health care costs because people are less active.*

**Response: Safety fears are real and have little to do with helmet laws**

Safekids works extensively with community coalitions on preventing child unintentional injury, one of the messages we hear repeatedly from them is that parents have a very real fear for the safety of their children as cyclists and pedestrians. These fears originate in concerns about the transport environment, such as high traffic density and speed in urban areas, and unsuitable traffic routes for cyclists and pedestrians because of 'stranger danger', graffiti, poor lighting, and a lack of safe crossing points etc. A recent Bikewise survey has found that when children were asked to state the dangers they faced when riding on the road, the most common answers given involved cars (55%, unspecified) and "cars hitting me" (42%).(19) Safety helmets are not seen as a "threat" or a source of fear, a nuisance and expense maybe; rather they are welcomed as a means to alleviate some of their fears. It is simplistic to blame the decline in cycle use and the rise in sedentary behaviour upon mandatory helmet use. Even the British Medical Association policy paper on cycle helmets, which argues for increased cycle use for health reasons and does not support compulsory helmet use laws, acknowledges the effectiveness of cycle helmets and "strongly recommends that all cyclists, especially children, wear proper fitting helmets".(20)<sup>1</sup>

*Some riders resent helmet laws as unnecessary government interference and argue New Zealand is over regulated.*

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<sup>1</sup> Emphasis added

**Response: Environmental and engineering changes are more effective than behaviour change: regulation tends to be only introduced when there is widespread support for it**  
Safekids believes that one of the most effective ways of reducing the New Zealand injury toll is to advocate for engineering and environmental changes that reduce reliance upon individual behaviour to promote safety. This approach is consistent with current developments in the field of injury prevention.

We agree that some may resent helmet laws. However, safety regulation in New Zealand generally only happens when there is popular consensus for the regulation, we believe this is the case for bicycle helmets and other laws such as requiring the use of motor cycle helmets, seat belts and child car seats.

*More pedestrians are killed annually than cyclists. Shouldn't they be wearing helmets too? Most head injury admissions to hospital (75%) result from car-accidents. Shouldn't car occupants wear helmets too?*

**Response: These questions are misleading, as they have nothing to do with the efficacy of helmets or the need for them. The case for helmets is about the fact that there is a need for them and that they work, not about preventing injury events in other situations.**

Cycle helmet advocates have never suggested that pedestrians and car occupants should wear helmets, these questions are part of the rhetoric that I have referred to earlier. Safety advocates have focussed upon cycle helmets simply because:

- 1) It is an issue of risk exposure, cyclists on the road are at far higher risk than pedestrians.
- 2) The probability of a serious head injury is higher for a cyclist than a pedestrian, simply because they are travelling faster than a pedestrian when a crash occurs. It is a simple law of physics that the faster the speed the higher the risk of an injury occurring, which is why bringing the urban speed limit down is so important.

1 & 2 mean that there is a much more urgent need for cyclists to wear helmets than for pedestrians.

The epidemiology of car occupant injuries is very detailed and overwhelming in pointing to the need to protect vehicle occupants in a wholistic way. This has meant that attention has focussed upon seat belts and vehicle safety rules that are aimed at preventing injury full stop - not just head injury. Vehicles already have safety measures built into them to help prevent head injuries, such as collapsible steering columns and steering wheels, and more recently airbags. These sorts of measures are more effective, in this situation, than wearing helmets in a vehicle.

*Does wearing a helmet make me feel safer?*

**Response: Yes and no**

Wearing a helmet makes me feel safer in that I am more confident that I will not suffer a severe head injury in the event of a crash. It does not make me feel safer in the sense that I feel that I think I am less likely to have a crash. This is an important distinction that needs to be better understood.

Injury prevention researchers, and advocates such as myself, have never argued that wearing a helmet will reduce the risk of a crash, or that they will necessarily make people feel safer although they may do so. All we have argued is that bicycle related head injuries are

preventable and wearing a bicycle helmet is one effective way of achieving this, which should be adopted by all bicycle riders.

*The real problem is the car. Debating the merits of bicycle helmets takes attention away from the effort to improve other forms of bicycling safety.*

**Response: Agreed**

Without question, the real problem facing cyclists (and pedestrians) is our love affair with the car and the reliance upon it for transportation, and the commensurate priority given to enhancing the roading network by government over alternative forms of transportation. The debate for a change in priorities is not new, it has been raging in Auckland since the early 1970s. The European Transport Safety Council in a recent review of pedestrian and cycle safety in urban areas has commented that the safety problems "result from a complex mix of factors, but underlying all other problems is the fact that the modern traffic system is designed largely from a car user perspective".(21) Furthermore, the British Medical Association (BMA) has observed that the European Commission has noted that in terms of road casualties, "it is important to ensure that an increase in road safety is brought about through making it safer for people to move around — not by curtailing that movement".(20)

**A plea to move beyond warring over bicycle helmets**

On-going litigation by opponents of bicycle helmets is not conducive to removing the fears of many people who would cycle if the roading environment were safer. Safekids would rather join with cycling advocates to promote a safer roading environment and cycle use through environmental and engineering change, than to spend scarce resources relitigating the merits of bicycle helmets.

I would like to suggest that a more cooperative approach would be better, which would see cycling and safety advocates adopt an approach that sees cycle helmets as only one part of a complex picture. I suggest that it would be more profitable for cycle and safety advocates if we were to adopt a policy, which acknowledges that

Cycle helmet wearing is an important part of a broader strategy to promote cycling as a healthy, physically active mode of transport. Central and local Government should urgently provide adequate resources to improve the conditions for cyclists with more dedicated cycle paths, road traffic reduction and calming measures, together with the provision of secure cycle parking facilities at bus and rail stations, and promoting programmes such as Safe Cycle Routes to School. Driver training and the Driving Test should specifically include and test driver awareness of cyclists and other vulnerable road users such as pedestrians.

The fact remains that helmets will still be necessary even if we can achieve the safest of cycling environments, simply because there will still be off and on road crashes, and without helmets it is likely that there will be an unacceptably high rate of head injuries. Consequently, wear your helmet, in the rare event of a crash there is a high probability that the helmet will help to save your life or protect you from a severe head injury.

## References

1. Ellis A. Guidelines could reduce children's head injuries from cycling. *BMJ* 2002;324(7348):1240b-.
2. Thompson DC, Thompson RS, Rivara FP, Adams J, Hillman M. Risk compensation theory should be subject to systematic reviews of the scientific evidence \* The risk compensation theory and bicycle helmets. *Inj Prev* 2002;8(2):1e-.
3. Bicycle Helmet Safety Institute. Our One-Sided Response to Some Negative Views on Helmets. Bicycle Helmet Safety Institute; 2001. <http://www.bhsi.org/negativs.htm>
4. Adams J, Hillman M. The risk compensation theory and bicycle helmets. *Inj Prev* 2001;7(2):89-91.
5. British Medical Journal. Electronic responses to: Anna Ellis, NEWS EXTRA Guidelines could reduce children's head injuries from cycling. *BMJ* 2002; 324: 1240b. <http://bmj.com/cgi/eletters/324/7348/1240/b#22852>
6. Dow N, Casey DM. Injuries in relation to Other Health Problems: Fact Sheet Number 24. Dunedin: Injury Prevention Research Unit; 1999.
7. Feyer A-M, Langley J. Unintentional Injury in New Zealand: Priorities and Future Directions. *Journal of Safety Research* 2000;31(3):109-134.
8. Wright CS, Langley JD, Allnatt DM. Causes of Injury: Fact Sheet Number 15. Dunedin: Injury Prevention Research Unit; 1999.
9. Dow N, Langley J, Kypri K, Casey DM. Trends in Cyclist Injury: Fact Sheet Number 25. Dunedin: Injury Prevention Research Unit; 2001.
10. Dow N, Stephenson SCR, Casey DM. Injury to Children in New Zealand resulting in Death or Hospitalisation: Fact Sheet 22: Updates Fact Sheet 09. Dunedin: Injury Prevention Research Unit; 2001.
11. Safekids. SafeKids Child Cyclist Injury Factsheet. Auckland: Safekids.
12. Rivara FP, Thompson DC, Thompson RS. Bicycle helmets: it's time to use them. *BMJ* 2000;321(7268):1035-1036.
13. Henderson M. The Effectiveness of Bicycle Helmets: A Review: Prepared for Motor Accidents Authority of New South Wales, Australia; 1995. Report No.: MAARE-010995.
14. Thompson D, Rivara F, Thompson R. Helmets for preventing head and facial injuries in bicycling. In: Cochrane Collaboration, Issue 4, Oxford: Update Software.; 1999.
15. Adams J. Public safety legislation and the risk compensation hypothesis: the example of motorcycle helmet legislation. *Environment and Planning Council: Government Policy* 1983;1:193-203.
16. Adams J, Hillman M, Godefrooij T, Jacobsen P, Wardlaw MJ, Jeys L, et al. Bicycle helmets. *BMJ* 2001;322(7293):1063-.
17. Hillman M. Cycle Helmets: The case for and against: Policy Studies Institute, London; 1993 1993.
18. Komanoff C. Safety in numbers? A new dimension to the bicycle helmet controversy. *Inj Prev* 2001;7(4):343-a-344.
19. NFO (World Group) New Zealand. Bikewise Research Report. Wellington: Health Sponsorship Council; 2002 April.
20. British Medical Association. Report on Cycle Helmets. British Medical Association; 1999.Zealand.
21. European Traffic Safety Council. Safety of Pedestrian and Cyclists in Urban Areas. Brussels: European Traffic Safety Council; 1999. Report No.: ISBN: 90-76024-08-1.